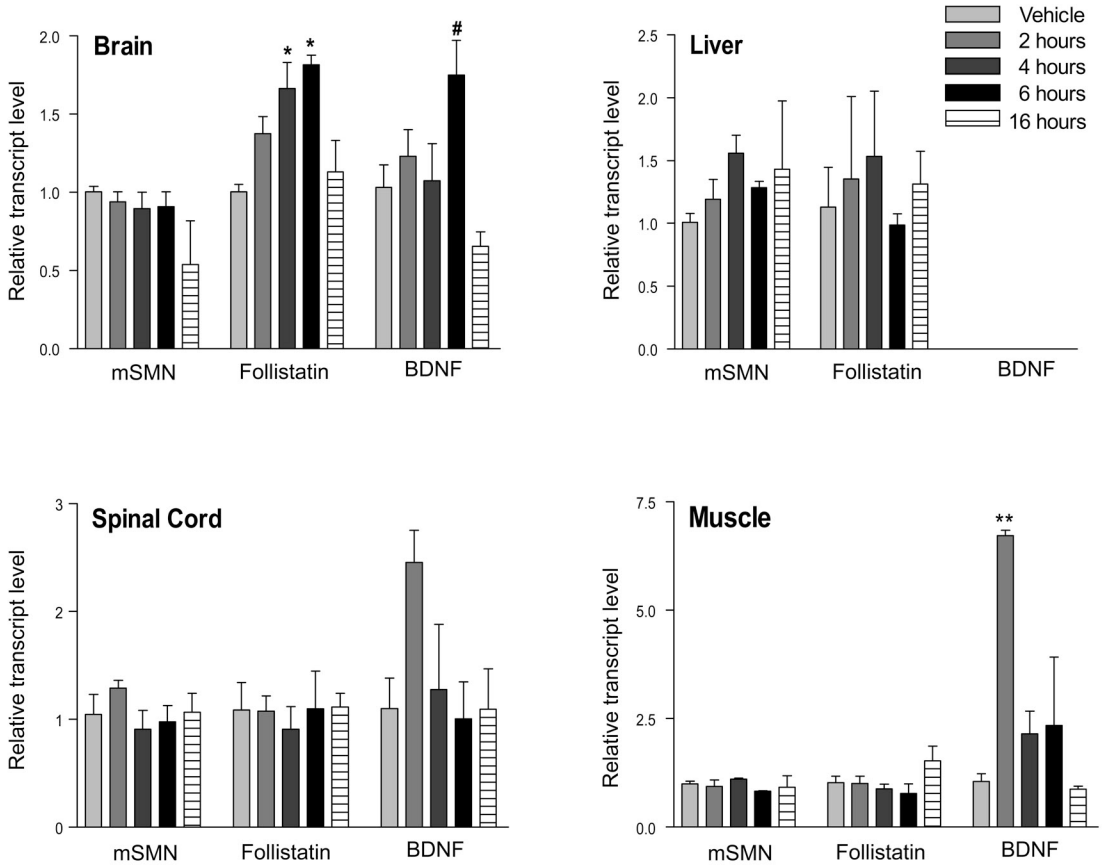
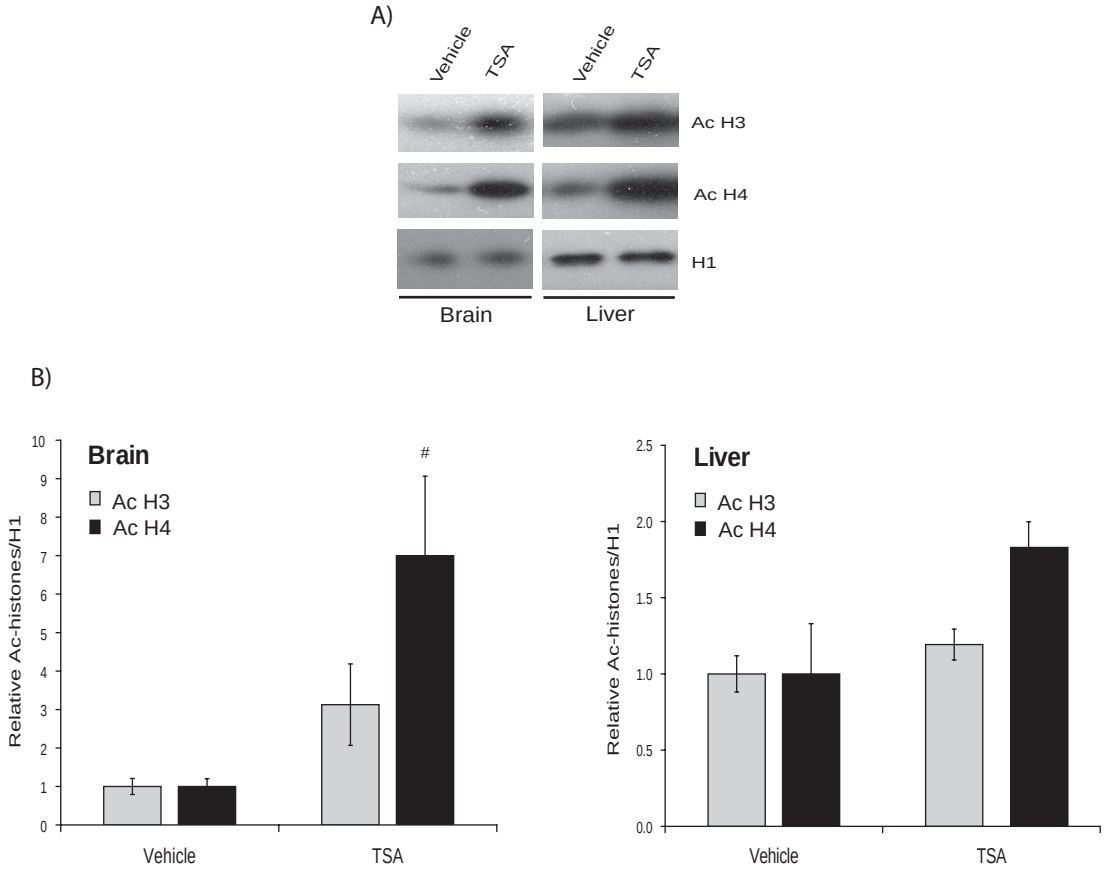
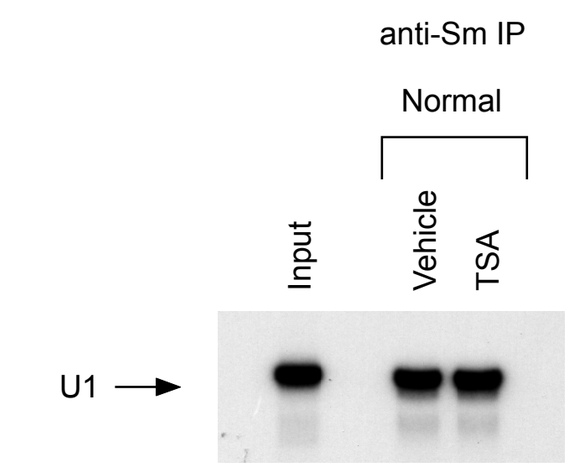


Supplemental Figure 1. TSA-induced changes in *Smn* gene expression in mice are transient. Normal mice were treated with 10 mg/kg TSA or vehicle and mouse SMN (mSMN), follistatin, and BDNF mRNA levels were measured in brain, liver, spinal cord, and muscle at 2, 4, 6, or 16 hours after dosing. BDNF mRNA levels were too low to be reliably measured in liver. Values represent the average and the SEM of 3 mice per treatment group (*p<0.01, **p<0.001).

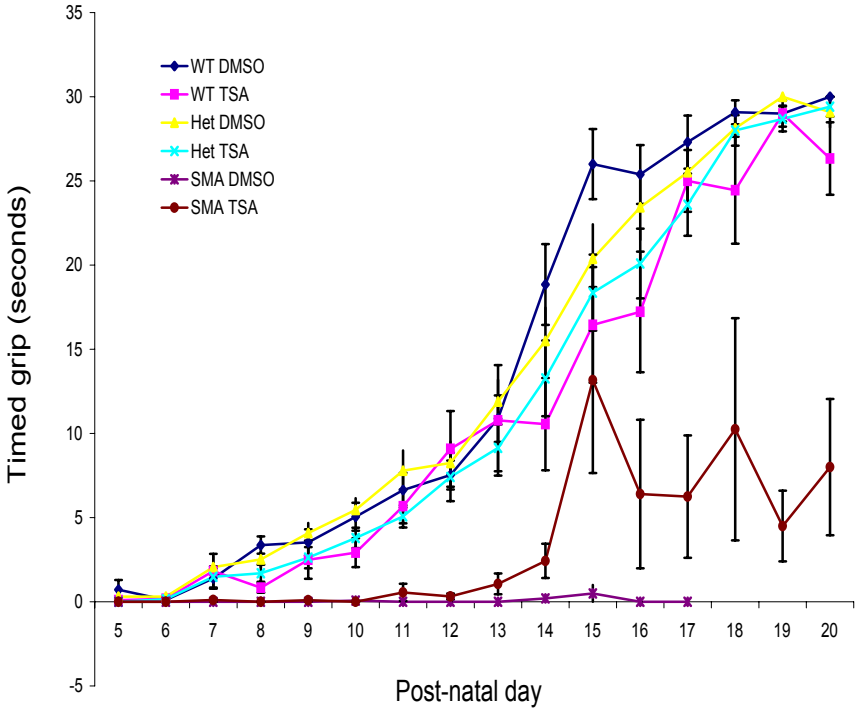


Supplemental Figure 2. TSA increases acetylated H3 and H4 histones in SMA mice. Acetylated H3 (Ac H3) and H4 (Ac H4) histone levels were determined in P10 SMA mice after treatment with a single dose of 10 mg/kg TSA or vehicle. (A) Representative western blot of Ac H3 and Ac H4 histones compared to H1 histones measured in brain and liver. (B) Quantification of Ac H3 and Ac H4 histones compared to H1 in brain and liver. Values represent the average and SEM of 4 mice per treatment group (# $p<0.05$).



Supplemental Figure 3. TSA treatment does not increase snRNP assembly activity in brain extracts of normal mice.

(A) Representative snRNP assembly reactions carried out using in vitro transcribed radioactive U1 snRNA and 25 mg of brain extracts from either vehicle- or TSA-treated heterozygous normal mice. Following immunoprecipitation with anti-Sm antibodies, input (2.5%) and immunoprecipitated U1 snRNAs were analyzed by electrophoresis on 10% polyacrylamide/8M urea denaturing gels and autoradiography. (B) Quantification of relative snRNP assembly activity in brain extracts from vehicle- and TSA-treated normal mice. Brain extracts from either vehicle-treated (n=8) or TSA-treated (n=7) heterozygous normal mice were prepared and analyzed by snRNP assembly and immunoprecipitation experiments as in A at the same time. The amount of immunoprecipitated U1 snRNAs was quantified using a STORM 860 Phosphorimager (Molecular Dynamics) and ImageQuant version 4.2 software. The values represent an average and SEM.



Supplemental Figure 4. TSA improves grip time in SMA mice.
Grip time in SMA mice treated with TSA (n=20) and vehicle (n=15), heterozygous mice treated with TSA (n=29) and vehicle (n=37), and wild type mice treated with TSA (n=12) and vehicle (n=19).